Our long-term spectral optical monitoring of type 1 AGN and BLR physics

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The properties of the broad line region (BLR) of active galactic nuclei (AGN), i.e. the size of the BLR and the velocity, are widely used to estimate the mass of the suppermassive black hole (SMBH) in AGN, either directly in case of the reverberation-mapped AGN or indirectly using the radius-luminosity relation which allows you to estimate the SMBH mass from one epoch observations. Therefore, we need to study in great details the physics and geometry of the BLR, which is still not fully understood. Moreover, the BLR is not yet resolved with currently available instruments even in the closest AGN, therefore the spectroscopy is still a very important method. Here we report on the results of our investigation of the physics of the BLR, e.g. the temperature, and our long-term optical monitoring of a dozen of type 1 AGN, a campaign coordinated by the Special Astrophysical Observatory.